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INSTRUCTIONS FOR USING ROADSIDE STRIPS IN THE 1942 FOREST INSECT SURVEY -CALIFORNIA REGION

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INSTRUCTIONS FOR USING ROADSIDE STRIPS IN THE 1942 FOREST INSECT SURVEY - CALIFORNIA REGION

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INSTRUCTIONS FOR USING ROADSIDE STRIPS IN THE 1942 FOREST INSECT SURVEY - CALIFORNIA REGION

The 1942 forest insect survey program in the California Region will rely heavily upon roadside strips as a means of estimating current damage to timber resources from bark beetle infestations. These strips should not be confused with roadside "counts" where only a count is made of the infested trees along the road. Roadside strips are intended as permanent checks or samples of infestations which may develop over a period of years. Each infested tree on the strip will be examined, measured and marked much the same as is now done on the 320-acre plots. Methods are now being tried whereby the location, boundaries and area of the roadside strips may be accurately and permanently defined.

The 1942 survey will be handled by various members of the laboratory each of whom will probably be using roadside strips as a basis for loss estimates. The procedure of establishing and cruising these strips may be new to most of the men and it seems desirable to explain as much of it as has been worked out thus far. Additional information and improved technique will undoubtedly result from the use of the strips in this year's survey.

THE CHARACTERISTICS OF A ROADSIDE STRIP

Definition and Purpose

The term "roadside strip" is currently applied to a sampling unit which is made up of a narrow belt or strip of forested land on one or both sides and parallel to a permanently located section of roadway. Acreage calculations and subsequent examinations of the strip will be simpler if both sides of the road are used and if the stand is continuous throughout the length of the strip.

It is the plan now to cruise the strips for timber losses at periodic intervals not to exceed one year. The currently infested trees found in each cruise will be examined by the spotter and a permanent record made of it. The data thus secured should be sufficient, both quantitatively and qualitatively, to follow the course of year-to-year infestations on the strips. If the strips are properly located, they should serve as an adequate basis for loss estimates over broader areas of forest land.

Width of Strips

The width of the strip is usually governed by the density of the stand and ground cover and by the topography of its cross-section. In the level, comparatively light stands of the eastside pine region, a

strip 10 chains wide (5 chains on each side of the road) has been found to be very satisfactory. In the steeper country and denser stands along the west slope of the Sierras and in a few parts of the eastside, it has been found that strips having a total width of more than 5 chains ($2\frac{1}{2}$ chains on each side of the road) are not feasible except in a very few cases.

Length of Strips

Since some strips may include both timbered and non-timbered acreage some distinction will have to be made between the net and gross lengths of the strips. Net length is the timber length or that portion of the strip actually cruised while gross length includes net length plus any non-timbered or atypical stands.

Theoretically, there is perhaps no fixed length for either net or gross lengths. As long as stand conditions are uniform within the strip it would be possible to have long strips. Few stands are so uniform as to allow more than several miles of continuously cruised strip. In order to budget the cruising time over widely distributed strips, it may be necessary to limit the length of individual strips. This was done on the Modoc National Forest in the 1941 survey. The strip lengths in many cases were limited to a net length of two miles. This length has so far been satisfactory and it seems desirable to continue this practice in the 1942 survey.

There are several practical considerations which may determine the exact length of any strip. Each strip, for instance, should be subdivided and cruised in units of one mile. These units are called plots and will be explained more fully below. It is desirable then that the net length of the strip be in units of one mile. In some cases, particularly in the Sierra Subregion, it may be difficult to locate enough timber to allow even-mile strips and the strip will then have to include whatever timber is available. If the strips are not to be permanently marked one must at least begin the strips at known landmarks. Permanent markers along the road will, of course, make this unnecessary.

Locating the Strip

The roadside strip should be representative of the stand and infestations conditions which it is to sample. The size of the stand and the number of strips necessary to adequately sample it will depend to some extent upon the uniformity of the stand characteristics: i.e., species composition, density, age, vigor, exposure, and elevation. In general, the more uniform each of these factors is over large areas, the fewer number of strips will be necessary to sample the stand.

Since the strip is to be a permanent sample it is important to locate it accurately so that it can be surveyed over and over again. The initial point should, if possible, begin at some point on the road

which is easily located and which can be accurately described. This may be at the intersection of the road with a stream, section line, another road, or an abrupt break in timber type. If no convenient landmark can be found at the site of the initial point, then a "tie" should be made to some known landmark, preferably along the same road.

Once the initial point has been established odometer readings should be recorded at all landmarks within the strip for additional reference. The temporary form shown in Figure 1 can be used for this purpose. Some of the references to be thus recorded would include cruiser posters, the beginning and end of any interruptions in cruising, and any landmarks the dimensions of which can be reduced to a single point along the road. Eventually these reference points will be recorded in units of 1/100 miles by a special survey odometer, but most of the automotive equipment to be used in the 1942 survey will be equipped to allow only 1/10-mile readings. In locating the strip it is important to indicate the direction of travel away from the initial point, also the route taken at road intersections and the points where cruising begins and ends.

Better strip locations can be made if a preliminary reconnaissance of the road has been made so that conditions along the entire length of the proposed strip will be known in advance. The information required of the driver in Figure 1 can be secured while the spotter is cruising the strip for the first time.

Things to avoid:

1. Especially crooked roads involving hairpin or tight "S" curves where considerable overlap exists in the cruised portions of the strip.

2. Roads steeper than 10 percent (100 feet vertical rise in every 1,000 feet horizontal). Error in strip acreage at this slope will be 1.5 percent and this figure increases rapidly with increase in slope percent.

3. Deep cuts and fills since these tend to influence the vigor of adjacent trees and cause bias in the loss cruises.

4. Atypical conditions such as changes in timber stand, occurrence of burns, meadows, rock flats, or brushfields if they occur within the confines of the proposed strip in excess of 5 percent of the total net acreage.

5. Roads with exceptionally wide cleared right-of-ways, such as State highways and some county roads.

The proposed strip need not be abandoned because of the presence of short stretches of any of the conditions listed in 1 to 4 above. Instead, merely eliminate these conditions as they are reached by stopping

Figure 1

ROAD STRIP INSECT LOSS SURVEY

TIMBER COVER OF STRIP:	DIMENSIONS			STRIP NO.
TYPE		ENTIRE STRIP	TIMBERED PORTION	SHEET NO.
SITE				FOREST
VIRGIN	LENGTH, MILES			COUNTY
CUTOVER	WIDTH, CHAINS			UNIT
2ND GROWTH	ACREAGE			DATE

SPOTTERS RECORDER

STRIP LOCATION:

ODOMETER READING	L	R	REMARKS	ODOMETER READING	L	R	REMARKS

the loss cruise and continuing the mileage of the strip through the interruption to the point where cruising can be resumed. If the factors which warrant an interruption are present on one side of the road only, less confusion will result if the half-strip on the other side of the road is also included in the interruption. Where these interruptions in cruising become too numerous it would be better to search for other strip locations having fewer of them yet still sampling the same stand conditions.

CRUISING PROCEDURE

Several incidents occurred in the 1941 survey which showed emphatically the need of safety measures while operating on roadside strips situated on well-travelled roads.

For the driver:

1. Do not interfere with the normal flow of traffic. Where traffic is heavy, all maneuvers must be preceded by hand signals and then made only when safe to do so.

2. Traffic approaching from the rear must be watched for and allowed to pass, especially on one-way roads.

3. Do not open car doors or step out into road without first looking for oncoming vehicles.

4. Do not make sudden stops on travelled portion of the road until road has been viewed to rear and following vehicles have been signalled.

5. Make smooth starts and stops to avoid injury to the spotters riding in pickups or other open vehicles.

6. Watch the road and let the spotter do the spotting.

For the Spotter:

1. Use care in climbing in or out of trucks while carrying axes.

2. Do not jump out of car on to road in the face of oncoming traffic or cross road until safe to do so.

Driver's Duties

The driver will operate the automobile and secure the information needed on the Driver's Form (Form B-91, Figure 2) and, if the strip is being established, the information called for on the form shown in Figure 1. Driving speed while cruising should not exceed 10 miles per hour and may even be less if requested by the spotter. Signals from the spotter should

Figure 2

Forest Insect Surveys
DRIVER'S FORM

STRIP No._____SHEET No.___YR. OF SURVEY_____
FOREST_____AREA_____UNIT_____
DATE_____DRIVER_____

PLOT No.____			PLOT No.____		
	Odometer			Odometer	

be complied with promptly but without any too-sudden movements. The following information may be of assistance in filling out the Driver's Form:

Strip Number: Will consist of the symbol "RD" and the number of the strip; i.e., RD-1.

Sheet Number: Number consecutively if more than one sheet if needed for each strip.

Year of Survey: Indicate the calendar year for which the loss is being obtained. If more than one calendar year's loss is being obtained in the same cruise, a separate Form B-91 will be required for each year's loss on the strip.

Forest: National forest

Area: Working circle or hazard reporting area

Unit: Infestation or entomological unit

Date: Date of survey

Driver: Name of driver, surname

Plot Number: Beginning at the initial point, the net length of each strip will be divided into one-mile plots, numbered consecutively beginning with "1" on each strip.

Odometer: Beginning at the bottom of the ruled diagram, the odometer reading will be placed in the space provided opposite the scaled location of each infested tree marked by the spotter. The location of each infested tree will be shown on the diagram by symbol and number. The symbols will consist of a dot for ponderosa pine, a small "x" for sugar pine, and a small equilateral triangle for Jeffrey pine. The number will be placed beside the symbol in fraction form with the numerator representing the year killed (41 for 1941, etc.) and the denominator the serial number. The mileage figures will be cumulative throughout the entire strip beginning with "zero" at the initial point. The spacing of the diagram allows two miles per plot, assuming one mile of this may be non-timbered or otherwise not cruised. The odometer readings should be given in 1/10th or 1/100th-mile units.

Scale: The diagram is ruled vertically into five columns. Each column would then represent a width of one or one-half chain depending upon whether the strip was 10- or 5-chains wide respectively. The scale used for the strip width should be indicated in the space provided.

Spotters' Duties

The spotters are to locate all the current beetle-killed trees on the strip while moving along the road at a slow speed. The speed of the vehicle should be adjusted so that sufficient time is given the spotter to examine each tree as he passes. All 1941 - and 1942 -infested trees should be examined and marked and any trees under suspicion should be examined. When an infested or suspicious tree is located the spotter should shout "Bugs" when the car is nearly opposite the tree. The driver should then spot the car opposite the tree and record the mileage. If the tree appears near the outside edge of the strip, the distance should be paced while the spotter is moving toward it. The outside edge of the strip is determined from the nearest edge of the road or cleared right-of-way.

All infested trees will be examined for basal-attacking bark beetle species, blazed and marked, and recorded as heretofore with the following exceptions:

1. Face the blaze toward the road so that it is visible from the road.

2. Use Spotter's Form (Form B-92, Figure 3) for recording data.

3. Include only ponderosa, sugar and Jeffrey pine in this year's survey.

4. Keep own record of serial numbers.

The various features of the Spotter's Form B-92 are as follows:

Trees Killed Calendar Year: Each sheet is intended as a record of a single calendar year's loss. On strips being cruised for the first time in 1942, the spotter will record trees killed in 1941 on a separate sheet from those killed in 1942. The proper year should be indicated in the blank space.

Strip Number: Use symbol "RD-1", "RD-2", etc, but leave blank if form is being used to record losses on regular 320-acre plot or samples other than strips.

Plot Number: See description of this item on Driver's Form description above.

Sheet Number: Use a consecutive numbering system for the losses of each calendar year if more than one sheet is required.

Forest, Area, Unit, Date, Spotter: See like items on Driver's Form description above.

Figure 3

Forest Insect Surveys
SPOTTER'S FORM

TREES KILLED CALENDAR YEAR_____
STRIP No._____PLOT No._____SHEET No._____
FOREST_____AREA_____UNIT_____

NUMBER	TREE SPP.	KILLED BY	DBH	LOGS	B.M. VOLUME	TREE CLASS DUNN.	KEEN

Number: The infested trees killed in each calendar year will be consecutively numbered beginning with "1" in each year.

Tree Spp: Indicate by symbol; ponderosa pine (PP), sugar pine (SP), or Jeffrey pine (JP).

Killed by: Indicate by symbol the bark beetle species found in the butt log; (Dendroctonus brevicomis (Db), D. monticolae (Dm), D. jeffreyi (Dj), Ips oregoni (Io), I. confusus (Ic), I. emarginatus (Ie), Melanophila spp. (FH).

DBH: Diameter breast high to the nearest even inch.

Logs: Number of 16 foot logs to an 8-inch top.

B.m. Volume: To be filled in from volume tables.

Tree Class: Dunning's and Keen's applied to ponderosa and Jeffrey pine only.